Omnicon Test Equipment and Your Bottom Line

The Omnicon Group works with you to design test equipment that best fits the life cycle needs of your product. We then develop, fabricate, and document the equipment, and can support it as you require.

Omnicon is available to assist you in developing requirements for your test equipment. We can suggest ways for the equipment to be more user-friendly, more flexible, more automatic, and generally more useful for development and production of your product.

We can support the test equipment to provide new features to your order, or your own staff can provide the upgrades with minimal effort because all Omnicon test equipment is modular, based on open standards, and delivered with a complete drawing package that includes schematics, wiring diagrams, source code, user manual, maintenance instructions, and acceptance test procedures.

All documents are prepared to best commercial practices or to your specifications.

About The Omnicon Group:
The Omnicon Group has been providing engineering services for over 25 years to all industries developing or requiring mission-critical, revenue-critical, or safety-critical systems and equipment. With an organization of talented engineers and project managers throughout the United States, Canada and Europe, we have supported more than 200 companies on over 1,000 projects. Our leadership position in engineering has been validated by the numerous business awards, citations and testimonials received, and the long-standing relationships we continue to maintain with our customers.

THE OMNICON GROUP INC.®

The Omnicon Group Inc.
50 Engineers Road • Hauppauge NY 11788 USA
(631) 436-7918 • Fax: (631) 436-7935
www.OmniconGroup.com

Avionics Test Equipment

from the RELIABILITY EXPERTS

The Omnicon Group develops, builds, and supplies test equipment for defense and commercial projects. Since our founding in 1984, we have supplied test equipment for product development, verification, manufacturing, and maintenance. Our equipment ranges from relatively simple, special-purpose desk-top units to multi-rack, general-purpose units that are configured solely by interface wiring and software. All Omnicon test equipment is easy to use, modular and built largely from COTS components. All test equipment includes extensive self-test capabilities and full documentation.

The Reliability Experts. Unlike most equipment suppliers, Omnicon is a specialist in reliability, maintainability, and safety engineering for mission-critical, safety-critical, and revenue-critical systems. This experience defines our culture, which means we understand that successful development of a product depends heavily on equipment that can thoroughly and reliably test it.

A General-Purpose System Designed for Avionics. The general purpose avionics test equipment, illustrated below and on the next page, is designed to exchange ARINC 429 and AFDX traffic under software-controlled configuration. Discrete inputs and outputs and other signal types are easily handled. The system is designed for expansion to accom-modate any realistic number and types of signals.

A Low-Risk Solution. Our general purpose avionics test equipment design is an extremely versatile and powerful COTS product on which we have successfully developed and integrated extensive system simulation and test soft-ware. Equipment is user-friendly, simulations are easy to control and observe, and advanced scripting automates equipment operations.

It Runs on Your PC, too. The software development environment can be run independently on a Windows- or Linux-based PC, so development and integration of project-specific simulation software can proceed and be demonstrated before test equipment hardware is available. The only restriction to PC development is that real UUT hardware cannot be tested. When the test equipment is ready for use, developers on your corporate network can use their PCs to manipulate, read, and log data manually or under full automation with scripts. Developers can work simultaneously at their desks without interference.

Database-Driven Architecture. Simulation software is independent of simulation quantities and types, object names, data definitions, constants, and data range limits, so test equipment validation need not be repeated when system parameters change. Developers can add and define new enumerations, data types, composite relationships (e.g., flight/ground state as a composite of weight-on-wheels and landing gear lever states), and much more – simply by changing data in a simulation database.

DOORS® Friendly. The simulation database can be derived automatically from requirements maintained in an IBM Rational DOORS® database rather than entered directly or maintained separately in a simulation database.

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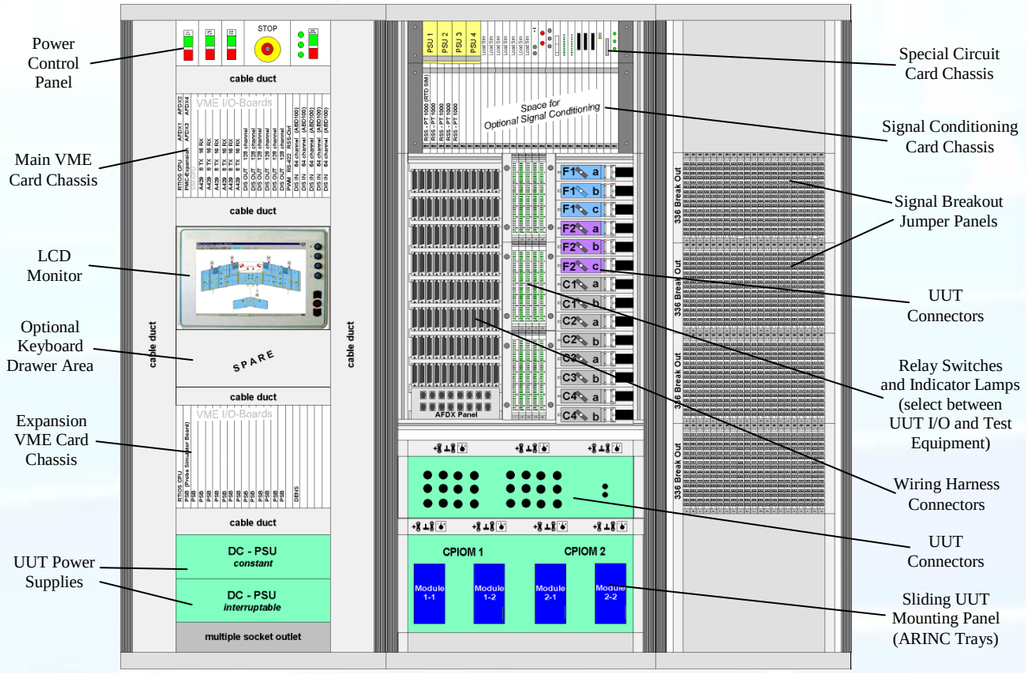
General-Purpose Avionics Test Equipment



Work with System-Level Concepts. Users observe, control, and record system-level names and values, not 1's and 0's. For example, Flight/Ground state can be enumerated as "Flight" and "Ground" rather than as binary states of weight on wheels switches and the landing gear lever. When you change Flight/Ground state, the associated binary states are changed automatically – and vice versa.

Powerful COTS software provides an operating system, configuration capabilities, advanced scripting and logging capabilities, interface drivers for discrete and serial hardware boards, an editor for constructing GUI panel controls and indicators, and "glue logic" for tying project-specific simulation software to the COTS capabilities. COTS and Open Source software additionally make the equipment easier to configure, easier to operate during testing, and easier to monitor real-time data. The software tailors the test equipment to the needs of the project during development and later for acceptance and production testing.

A GUI toolset and panel editor are invaluable during engineering development because controls and indicators can be assembled in minutes for conducting one-time or repeated tests, experiments, and confidence checks. All control-indicator panels can be saved for future use.

Test Parts of Your System in any Combination. Any parts of your prime item equipment can be simulated. You can test a single hardware UUT or a single software module, or any combination of simulated and real items working together.

True OO. All simulation and configuration software is modular and truly object-oriented to facilitate fault isolation, expansion and future growth.

It's Intuitive. A few minutes of demonstration is usually adequate to start users on the test equipment. User manuals are excellent but are seldom required.

Powerful Scripting and Logging. You can script almost any manipulation and reading, and you can script and log independently. You can even script multiple loggers. Use scripts to develop acceptance test procedures that can be run automatically.

Designed for Safety. Test equipment power supplies are overcurrent- and overvoltage-protected. Digital outputs are current-limited and short-circuit proof. The test equipment's power control panel includes prime power circuit breakers and an emergency power-off switch.

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Omnicon general-purpose avionics test equipment provides bottom-line benefits by being more informative and helpful to users, more automatic, more flexible, and easier to configure and operate.

Capability	Design Feature	Bottom-Line Benefit
Networking	Client/Server architecture	Test equipment can be operated via any PC on the corporate network – avoids the need for new terminals, minimizes crowding in the lab, and provides remote access. Equipment software and test results can also be exchanged on the network.
Multi-user Access	Multi-user operation and protection	More efficient use of test equipment by simultaneous users, in the lab or at their desks, without mutual interference.
System-level View	Control and read system-level states as single variables	Enables software developers, hardware designers, testers, and QA to each view data at appropriate levels – e.g., flight/ground state (1) as a single variable name, (2) as underlying WOW and landing gear names, or (3) as binary numbers. Variable names are automatically mapped to serial message words and discretes.
Generic Data Display	All available data object parameters on a single, generic display	Quickly set up one or more tabular displays of real-time data, and save them for future use.
Data Development, Maintenance	Database-driven software architecture	Simulation software remains independent of data changes. Data changes have minimal or no impact on simulation software.
Configuration	Configure test setup by GUI	Configure the test equipment for any permutation among connected real UUTs and simulated UUT hardware items and software modules by mouse clicks, not wiring.
Scripting	1. Display of script progress 2. Auto file saving 3. Auto file naming for uniqueness 4. Single-step mode 5. User prompts and inputs 6. Pass/Fail determination 7. Auto timeout 8. Auto error and fault handling 9. Script libraries 10. Error detection and reporting	1. Watch script operations as they execute, line by line. 2. Scripts automatically save all operations and results to files. 3. File names are composed of script name, date, and time. 4. Helps debug new scripts and prime equipment HW and SW. 5. Saves all user input data in script results files. 6. Instantly determines pass/fail results of designated readings. 7. Prevents equipment lockout due to script error hang-up. 8. Scripts can run, pause, or abort on errors or failures. 9. Scripts can call other scripts to save development time. 10. Clear messages help debug new scripts, troubleshoot UUT.
Logging	Multiple, independent loggers that operate independently of scripts	Log hundreds of signals. Loggers are independently settable for sample rate, sample mode, file size, triggers, etc. Can include pre- and post-log data.
User Tools	Library of GUI controls and indicators	Set up for manual operations quickly and on the fly. Keep resulting control panels for future use.
User Help	On-line, HTML-based help	Get complete information about any real or simulated parameter by a mouse click – formal name of parameter, current value, override value, initial value, value range or enumeration space, identification of the data object's "owner," and more.
Diagnostics	Self-test	Performs hardware checks automatically upon turn-on.